

CHEMICAL WARFARE SUPPLY CATALOG

Ammunition,  
4.2-Inch Chemical Mortar

(Including Propelling Charges,  
Fuzes and Other Components)

This catalog contains information on the ammunition for the 4.2-Inch Chemical Mortar. Components of complete rounds are listed, described, and illustrated and a list of complete rounds is given. All marking information that is necessary for field designation and use is shown.

This catalog is to be used for identification, storage, and supply for all echelons.

*Headquarters, Army Service Forces, 19 March 1945*

HEADQUARTERS, ARMY SERVICE FORCES,  
Washington 25, D. C., 19 March 1945

Army Service Forces Chemical Warfare Supply Catalog, CW 11-1, Ammunition, 4.2-Inch Chemical Mortar (Including Propelling Charges, Fuzes and Other Components) has been prepared under the supervision of Chief, Chemical Warfare Service, and is published for the information and guidance of all concerned.

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Refer to FM 21-6 for explanation of distribution formula.

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## NOTES

### 1. SHELL BODIES.

In the M2 and M3 shell bodies the base is an integral part of the shell body. In the M2 Alternate, M3 Alternate and M4 shell bodies, the base is made separately and then brazed to the shell casing. Issue of either type is authorized.

### 2. STANDARDIZATION.

An item, when marked "S" (Standard), is one which is procured and stored for issue. An item, when marked "SS" (Substitute Standard), is one which is stored and procured for issue when the standard item is not available. An item marked "LS" (Limited Standard), is one which is no longer procured but is maintained and stored for issue until supply is exhausted.

### 3. CARTRIDGES.

- (a) One extra cartridge is packed with every fifth box of complete rounds.
- (b) The ignition cartridge MK.I has been superseded by the cartridge E11, but propelling charges may be issued with the older cartridge.

### 4. PROPELLING CHARGES.

- (a) The M6 and M7 powder charges are basically the same and may be used interchangeably on all shells listed, with the exception of the 3-inch sub-caliber, provided no more than 20-1/2 rings are used on the M4 shell. When the M6 propelling charge is furnished, a complete round charge of 25 bundles (four packs of five bundles each and five separate bundles) is placed over the cartridge container and the clip adjusted. The cartridge is then inserted. The M7 propelling charge for the M4 shell is packed with the complete round in a manner similar to the packing of the M6 propelling charge.
- (b) Some of the stored boxes of shells have the M5A1 propelling charge. The M5A1 propelling charge is packed two charges and two cartridges to a small carton and the carton placed in the complete round box.
- (c) A half bundle is included with each M5A1 propelling charge and is furnished as an extra increment in addition to the full charge for the purpose of obtaining intermediate ranges.

### 5. RANGE TABLES.

The range tables specified are applicable only when the designated propelling charge is used.

### 6. PACKAGING.

M4 and M5 fuzes can be used only on M3 and M4 HE shells. At the present time, all M3 and M4 HE shells are issued with the M3 fuze only. M4 and M5 fuzes are issued separately and when their use is warranted, their substitution for the M3 fuze must be made in the field.

## NOTES

### 7. COMPLETE ROUNDS.

The components - shell body, filling, fuze, propelling charge and ignition charge - are assembled into a complete round. The complete round is coated with a rust preventive and then inserted in a water-proofed cylindrical carton, the joint of which is sealed with non-hygroscopic adhesive tape. Two such rounds are then packed in a wooden box.

### 8. SYMBOL CODE.

SYMBOL	NAME
H	Mustard
L	Lewisite
CG	Phosgene
CNS	Chloracetophenone in chlorpicrin-chloroform solution
CNB	Chloracetophenone in benzol-carbon tetrachloride solution
WP	White Phosphorus
FS	Sulfur trioxide in chlorosulfonic acid
FM	Titanium tetrachloride
HE	High explosive (trinitrotoluene)

### 9. WP FILLED SHELL.

The boxes containing the complete round WP filled shell must be stored with the shell in an upright position. The boxes are marked with a notation and an arrow showing the proper position.

### 10. TRAINING SHELL.

The training shell (Plate 9) is a component of the Mortar, Sub-caliber, 3-inch, M3 (C8-1-20) and is listed in this catalog for information only.

### 11. SHIPPING DATA.

The number of containers, or items, per vehicle is limited by the weight carrying capacity or by the cubical capacity of the vehicle. Actual safe capacity may vary with the condition of the vehicle, the roads to be traversed, the type of material carried, current regulations in regard to freight car loading, or the urgency of the situation. The following data are estimates only:

<u>Vehicle</u>	<u>Dimensions (ft.)</u>	<u>Load (lb.)</u>	<u>Load (cu.ft.)</u>
Truck, 1-1/2 ton, 4x4	9.0 x 5.8 x 5.0	3000	195
Truck, 2-1/2 ton, 6x6	12.0 x 6.7 x 5.0	5000	315
RR car, 40 ton	40.0 x 8.5 x 8.0	80000	2600
RR car, 50 ton	40.0 x 8.5 x 8.0	100000	2600

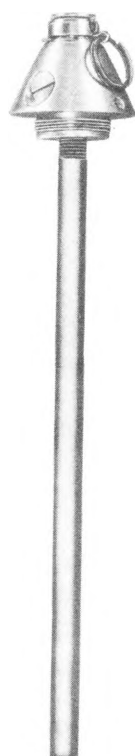


SHELL BODY

**PLATE 1**

**SHELL BODIES**

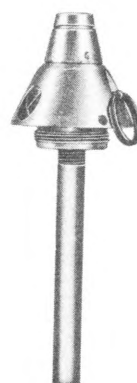
DESCRIPTION	M2	M2-ALTERNATE	M3	M3-ALTERNATE	M4	M5 (3-INCH)
Assembly Drawing . . . . .	C8-13-71	C8-13-111	C8-13-119	C8-13-117	C8-13-153	C8-13-164
Bill of Material . . . . .	C8-13-71	C8-13-111	C8-13-119	C8-13-117	C8-13-153	C8-13-164
Standardization . . . . .	S	S	S	S	LS	S
Specification Number . . . . .	96-81-135	96-81-135	96-81-175	96-81-175	196-81-201	196-81-211
Type of Shell . . . . .	Chemical	Chemical	HE	HE	HE	Training
Type of Base . . . . .	Solid	Brazed	Solid	Brazed	Brazed	-
Vane . . . . .	Yes	Yes	No	No	No	-
Weight of Shell, lbs. . . . .	15.7	15.95	14.56	14.8	18	5.94
Cubage of Shell, cu. ft. . . . .	.2	.2	.2	.2	.21	.07
Gross Weight, Package, lbs.. .	49.5	50	47.1	47.6	54	88
Gross Cubage, Package, cu. ft..	.57	.57	.57	.57	.57	1.63



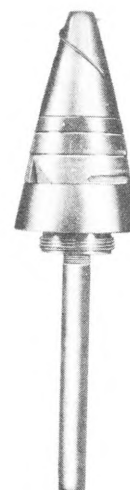
M2



M3



M4



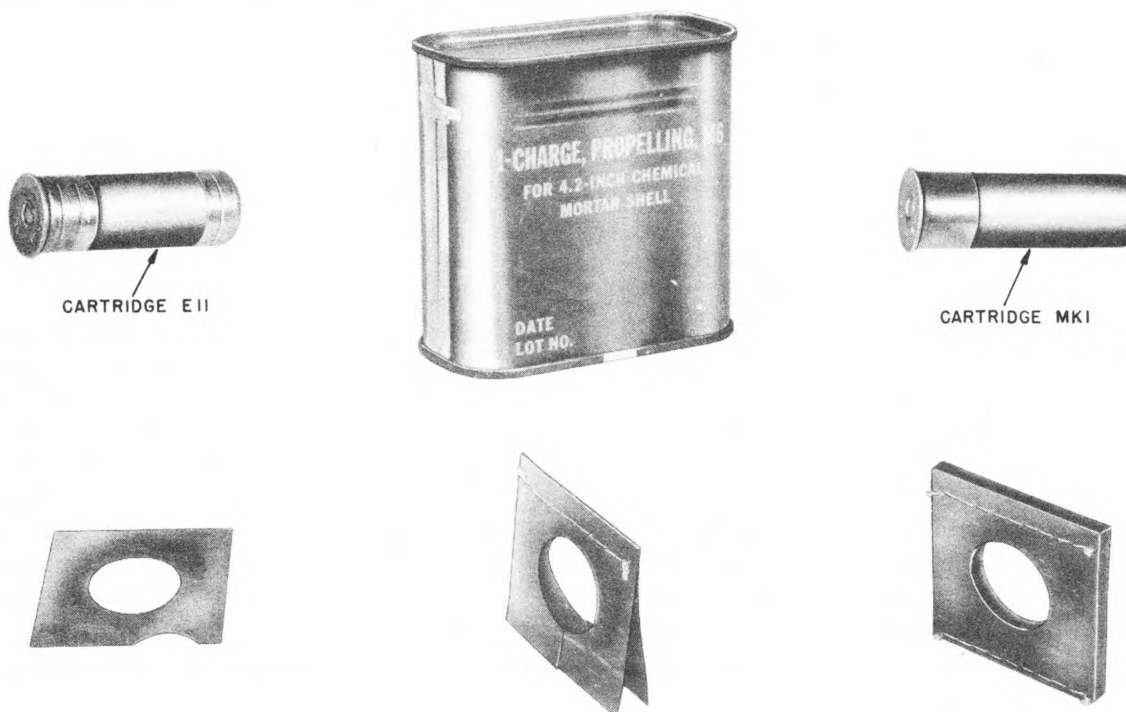
M5

## FUZES

## PLATE 2

## FUZES

DESCRIPTION	M2	M3	M4	M5
Type . . . . .	Impact	Impact	Delay	Time & S. Q.
Specification Number. . . . .	96-81-96	96-81-176	196-81-221	196-81-204
Assembly Number . . . . .	B16-11-26	B8-11-53	C8-11-94	B8-11-84
Bill of Material . . . . .	B16-11-25	B8-11-52	C8-11-93	B8-11-83
Standardization . . . . .	S	S	S	S
Weight of Fuze, lbs. . . . .	1.5	1.	1	2
Cubage of Fuze, cu. ft. . . . .	.06	.026	.032	.04
Number per Box. . . . .	50	50	20	12
Gross Weight of Box, lbs.. . . .	118	86	56	54
Gross Cubage of Box, cu. ft. . . .	4.21	2.66	1.67	1.25



PROPELLING CHARGES AND CARTRIDGES

## PLATE 3

## PROPELLING CHARGES AND CARTRIDGES

DESCRIPTION	M5A1	M6	M7	M8	CARTRIDGE E11
Specification Number . . . . .	96-81-41A	196-81-190	196-81-202	196-81-215	196-81-217
Assembly Drawing Number . .	E8-14-42	B8-14-53	B8-14-62	B8-14-64	B8-14-68
Bill of Material . . . . .	B8-14-41	B8-14-53	B8-14-62	B8-14-64	B8-14-68
Standardization. . . . .	LS	S	LS	S	-
Powder Specification Number .	50-12-16	50-12-16	50-12-16	PXS-688	-
Weight of Charge, lb. . . . .	.437	.437	.35	.08	-
Cubage of Charge, cu. ft. . . .	.01	.01	.01	.01	-
Gross Weight of Container, lbs.	-	-	-	.7	-
Gross Cubage of Container, cu.ft.	.03	.014	-	.007	-
Gross Weight of Box, lbs. . . .	47	54	103	48	72.75
Gross Cubage of Box, cu. ft. . .	1.66	1.36	2.58	.79	1.5
Cartridge Used. . . . .	MK.I, Type I, Class A or E11	E11	E11	M5A1(60 mm)	-
Type . . . . .	-	-	-	-	Shotgun type
Weight lbs. . . . .	-	-	-	-	.06
Cubage, cu. ft. . . . .	-	-	-	-	.003
Number per Carton . . . . .	2	1	-	-	25
Number per Box . . . . .	-	48	-	-	675
Charges per Box . . . . .	200	50	200	100	-
Bundles per Charge . . . . .	12*	25-1/2	20-1/2	9	-

\*See Note 4C on Page 4.



# SMOKE SHELL

DESCRIPTION	SHELL, SMOKE, WP, 4.2-INCH CHEMICAL MORTAR, M2	SHELL, SMOKE, FS, 4.2-INCH CHEMICAL MORTAR, M2	SHELL, SMOKE, FM, 4.2-INCH CHEMICAL MORTAR, M2
Stock Number . . . . .	213150	213250	213350
Specification Number . . .	196-81-136 A	196-81-153 A	196-81-154 A
Assembly Drawing . . . . .	B8-10-17	B8-10-17	B8-10-17
Bill of Material . . . . .	C8-10-34 -	C8-10-34	C8-10-34
Standardization . . . . .	S	SS	LS
Components			
Shell Body. . . . .	M2 C8-13-71	M2 C8-13-71	M2 C8-13-71
Filling . . . . .	WP 4-503-305	FS 96-31-5	FM 196-31-4
Fuze . . . . .	M2 B16-11-26	M2 B16-11-26	M2 B16-11-26
Propellant . . . . .	M6 B8-14-53	M6 B8-14-53	M6 B8-14-53
Cartridge . . . . .	E11 B8-14-68	E11 B8-14-68	E11 B8-14-68
Filling Weight, lbs. . . . .	7.5	7.5	7.5
% Void in Shell, Minimum .	14.7	23	14
Complete Round Weight, lbs..	25.5	25.5	25.5
Complete Round Cubage, cu.ft.	.21	.21	.21
Rounds per Box . . . . .	2	2	2
Gross Weight, lbs. . . . .	68.5	68.5	68.5
Gross Cubage, cu. ft. . . .	1.13	1.13	1.13
Range Table Applicable . .	A-(3)	A-(3)	A-(3)

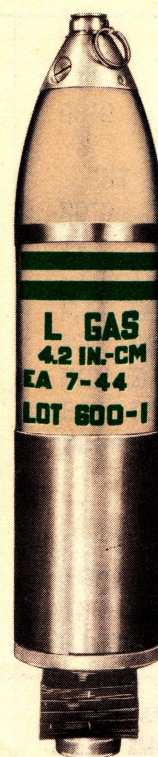
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CW 11-1

SMOKE SHELLS





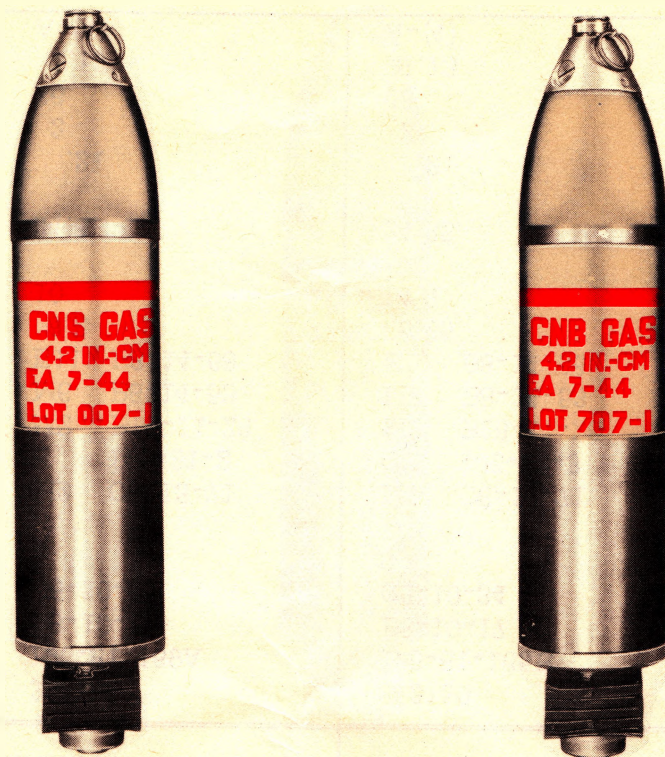
CASUALTY GAS SHELLS

PLATE 5

## CASUALTY GAS SHELL

DESCRIPTION	SHELL, GAS, PERSISTENT, H, 4.2-INCH CHEMICAL MORTAR, M2	SHELL, GAS, NON-PERSISTENT, CG, 4.2-INCH CHEMICAL MORTAR, M2	SHELL, GAS, PERSISTENT, L, 4.2-INCH CHEMICAL MORTAR, M2
Stock Number . . . . .	323150	313150	323250
Specification Number. . .	196-81-169A	196-81-165B	196-81-170A
Assembly Drawing. . . .	B8-10-17	B8-10-17	B8-10-17
Bill of Material . . . . .	C8-10-34	C8-10-34	C8-10-34
Standardization . . . . .	S	S	SS
Components			
Shell Body. . . . .	M2 C8-13-71	M2 C8-13-71	M2 C8-13-71
Filling . . . . .	H 196-21-2	CG 196-21-3	L 196-21-14A
Fuze . . . . .	M2 B16-11-26	M2 B16-11-26	M2 B16-11-26
Propellant. . . . .	M6 B8-14-53	M6 B8-14-53	M6 B8-14-53
Cartridge . . . . .	E11 B8-14-68	E11 B8-14-68	E11 B8-14-68
Filling Weight, lbs. . . . .	6.2	6.25	7.5
%Void in Shell, Minimum .	10	14.3	21.6
Complete Round			
Weight, lbs. . . . .	24.6	24.25	25.5
Complete Round Cubage,			
cu. ft. . . . .	.21	.21	.21
Rounds per Box . . . . .	2	2	2
Gross Weight, lbs. . . . .	66	66	68.6
Gross Cubage, cu. ft. . . .	1.13	1.13	1.13
Range Table Applicable .	A-(4)	A-(4)	A-(3)





HARASSING GAS SHELLS

PLATE 6

## HARASSING GAS SHELL

DESCRIPTION	SHELL, GAS, IRRITANT, CNS, 4.2-INCH CHEMICAL MORTAR, M2	SHELL, GAS, IRRITANT, CNB, 4.2-INCH CHEMICAL MORTAR, M2
Stock Number . . . . .	333250	333350
Specification Number. . . . .	196-81-166A	196-81-171A
Assembly Drawing. . . . .	B8-10-17	B8-10-17
Bill of Material . . . . .	C8-10-34	C8-10-34
Standardization . . . . .	S	S
Components		
Shell Body. . . . .	M2 C8-13-71	M2 C8-13-71
Filling . . . . .	CNS 196-21-5	CNB 196-21-15A
Fuze . . . . .	M2 B16-11-26	M2 B16-11-26
Propellant. . . . .	M6 B8-16-53	M6 B8-16-53
Cartridge . . . . .	E11 B8-14-68	E11 B8-14-68
Filling Weight, lbs. . . . .	7	5.45
% Void in Shell, Minimum . . . . .	4.5	5.7
Complete Round Weight, lbs. . . . .	25	23.5
Complete Round Cubage, cu. ft. . . . .	.21	.21
Rounds per Box . . . . .	2	2
Gross Weight, lbs. . . . .	67.5	64.4
Gross Cubage, cu. ft.. . . .	1.13	1.13
Range Table Applicable. . . . .	A-(3)	A-(4)

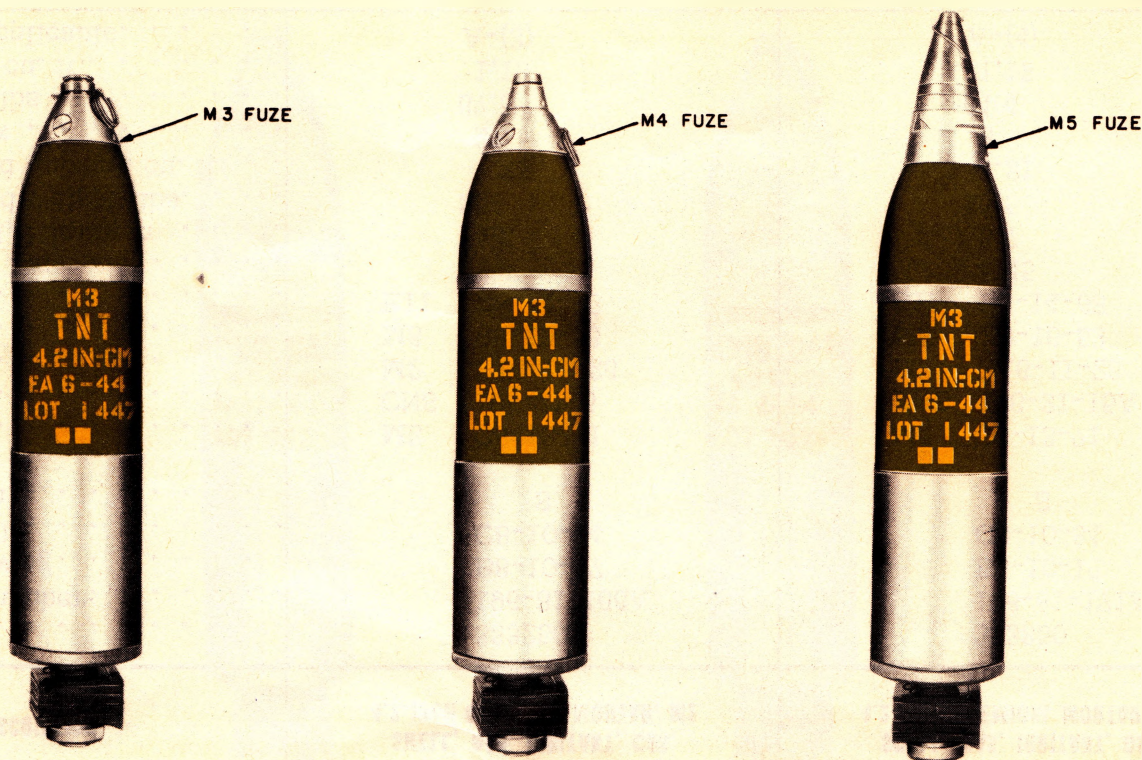


# M3 HIGH EXPLOSIVE SHELL

DESCRIPTION	SHELL, 4.2-INCH CHEMICAL MORTAR, HE, M3 (WITH M3 FUZE)	SHELL, 4.2-INCH CHEMICAL MORTAR, HE, M3 (WITH M4 FUZE)*	SHELL, 4.2-INCH CHEMICAL MORTAR, HE, M3 (WITH M5 FUZE)*
Stock Number	273110	273111	273112
Specification Number	196-81-220	-	-
Assembly Drawing	B8-10-32	-	-
Bill of Material	C8-10-38	-	-
Standardization	S	S	S
Components			
Shell body	M3 C8-13-119	M3 C8-13-119	M3 C8-13-119
Filling	TNT 50-13-5	TNT 50-13-5	TNT 50-13-5
Fuze	M3 B8-11-53	M4 C8-11-93	M5 B8-11-83
Propellant	M6 B8-14-53	M6 B8-14-53	M6 B8-14-53
Cartridge	E11 B8-14-68	E11 B8-14-68	E11 B8-14-68
Filling Weight, lbs.	8.5	8.5	8.5
%Void in Shell, Minimum	None	None	None
Complete Round			
Weight, lbs. . . .	24.5	24.5	25.5
Compound Round. . .			
Cubage, cu. ft. . .	.21	.21	.21
Rounds per Box . . .	2	2	2
Gross Weight, lbs. . .	65.6	-	-
Gross Cubage, cu. ft..	1.13	-	-
Range Table Applicable	A-(4)	A-(4)	A-(3)

\* See Note 6 on Page 4

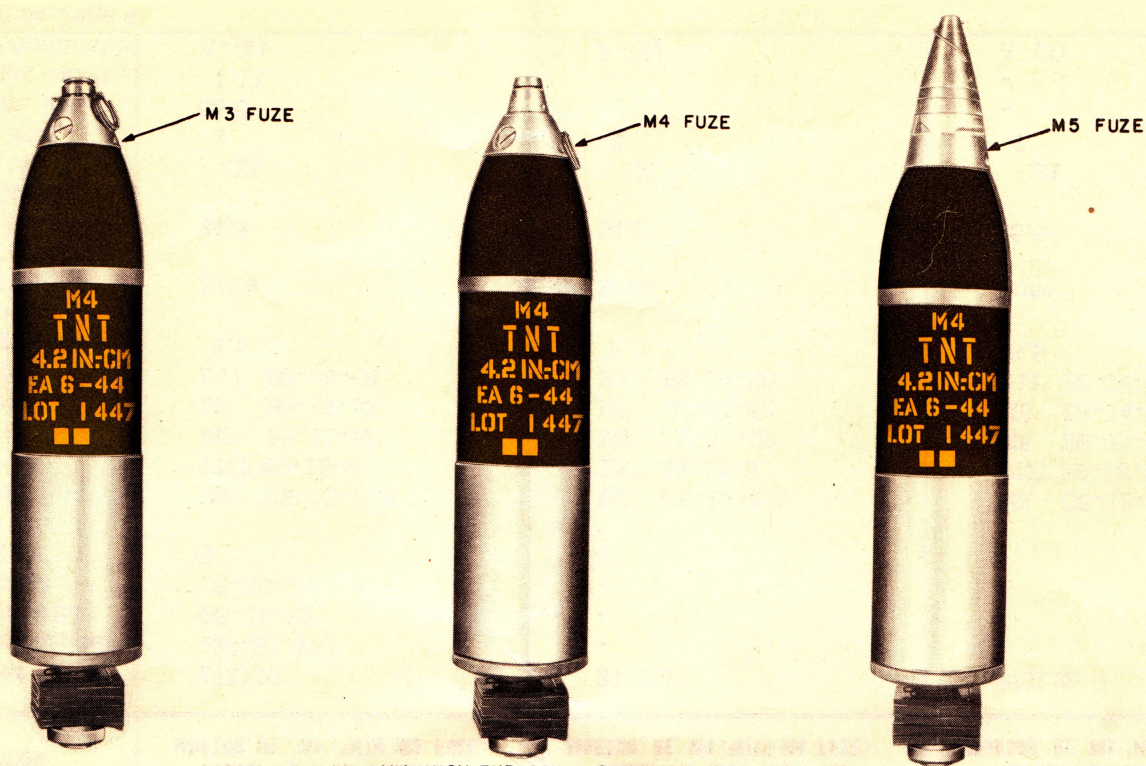
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M3 HIGH EXPLOSIVE SHELLS

CW 11-1





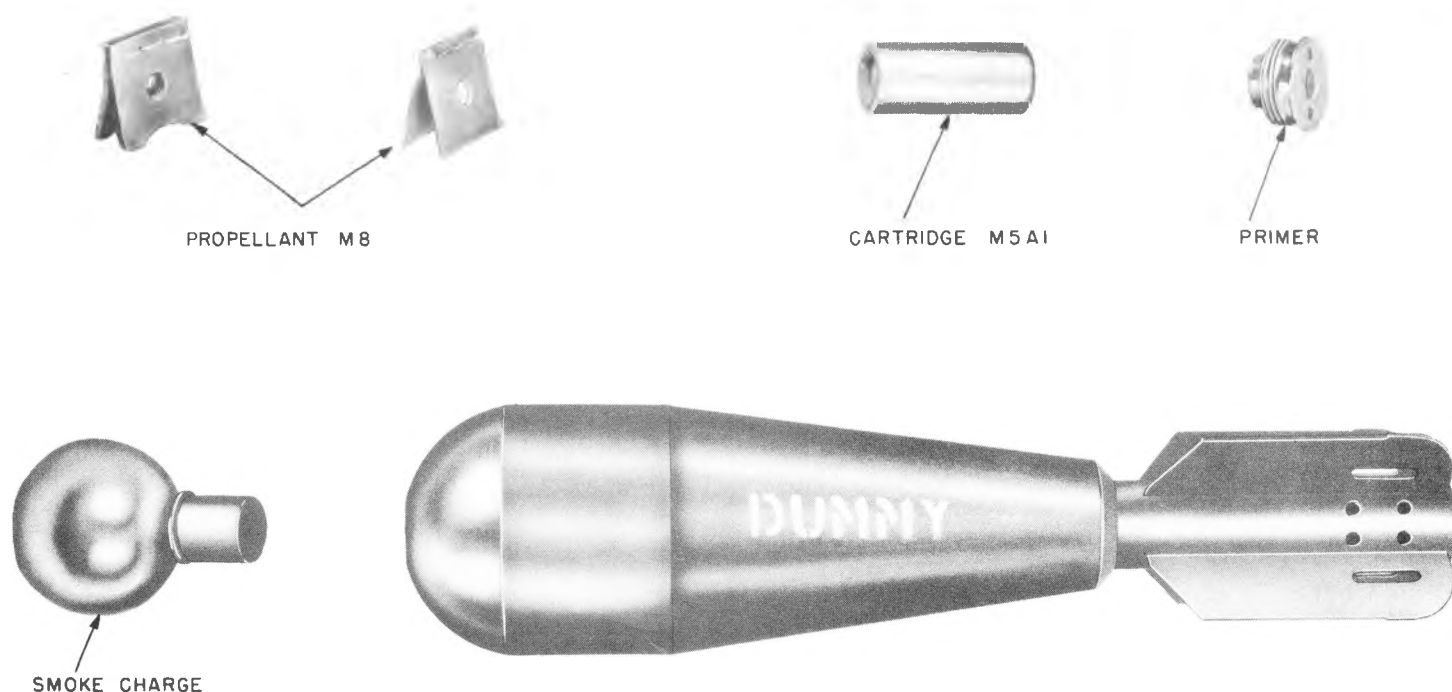
M4 HIGH EXPLOSIVE SHELLS

## PLATE 8

## M4 HIGH EXPLOSIVE SHELL

DESCRIPTION	SHELL, HE, 32-lb., CHEMICAL MORTAR, M4 (WITH M3 FUZE)	SHELL, HE, 32-lb., CHEMICAL MORTAR, M4 (WITH M4 FUZE)*	SHELL, HE, 32-lb., CHEMICAL MORTAR, M4 (WITH M5 FUZE)*
Stock Number . . . . .	273114	273115	273116
Specification Number . . .	196-81-205	-	-
Assembly Number . . . . .	B8-10-40	-	-
Bill of Material . . . . .	C8-10-41	-	-
Standardization . . . . .	LS	LS	LS
Components			
Shell body . . . . .	M4 C8-13-153	M4 C8-13-153	M4 C8-13-153
Filling . . . . .	TNT 50-13-5	TNT 50-13-5	TNT 50-13-5
Fuze . . . . .	M3 B8-11-53	M4 C8-11-94	M5 B8-11-83
Propellant . . . . .	M7 B8-14-62	M7 B8-14-62	M7 B8-14-62
Cartridge . . . . .	E11 B8-14-68	E11 B8-14-68	E11 B8-14-68
Filling Weight, lbs. . . . .	6.6	6.6	6.6
% Void in Shell, Minimum	None	None	None
Complete Round Weight, lbs.	32	32	32
Complete Round Cubage, cu. ft. . . . .	.21	.21	.21
Rounds per Box . . . . .	2	2	2
Gross Weight, lbs. . . . .	84.8	-	-
Gross Cubage, cu. ft. . . .	.94	-	-
Range Table Applicable. .	A - (5a)	A - (5a)	A - (5b)

\* See Note 6 on Page 4



M5 SUB-CALIBER SHELL WITH  
SMOKE CHARGE AND PROPELLING CHARGE

PLATE 9

**TRAINING SHELL**

DESCRIPTION	SHELL, SUB-CALIBER, 3-INCH, M5	CHARGE, SMOKE, 3-INCH SUB-CALIBER SHELL, M1	CHARGE, PROPELLING, 3-INCH SUB-CALIBER SHELL, M8
Stock Number . . . . .	-	-	See Table of Propelling Charges and Cartridges on Page 11
Specification Number . . . . .	196-81-211	196-81-214	
Assembly Number . . . . .	C8-13-164	B8-44-2	
Bill of Material . . . . .	C8-13-164	B8-44-2	
Standardization . . . . .	-	-	
Components			
Shell body . . . . .	C8-13-164	-	
Filling . . . . .	None	-	
Fuze . . . . .	None	-	
Propellant . . . . .	-	-	
Cartridge . . . . .	M5A1	-	
Round Weight, lbs. . . . .	6	-	
Round Cubage, cu. ft. . . . .	-	-	
Rounds per Box . . . . .	10	100	
Gross Weight, lbs. . . . .	81	-	
Gross Cubage, cu. ft. . . . .	1.66	-	

MARKING

COMPLETE ROUND SHELL MARKING

The ammunition listed in this catalog is marked in such a way as to provide positive identification. The shells are painted primarily for rust prevention, and use is made of different colors to distinguish between classes. Markings are of distinctive colors with symbols of filling and use stenciled on shells and one or two bands of same color around the shells. The color code is as follows:

High Explosive (HE): Olive drab body color with yellow markings.

Chemical filling: Blue-gray body color with

- a. Green Markings indicating a casualty type agent
  - (1) A single green band around the shell indicates a non-persistent casualty agent.
  - (2) Two green bands around the shell indicate a persistent casualty agent.
- b. Red Markings indicating a harassing agent (one red band).
- c. Yellow Markings indicating screening smokes (one yellow band)
- d. Purple Marking indicating an incendiary agent.

Practice: Blue body with white markings.

Dummy or Drill: Black body with white markings.

The mortar shells are further identified by the following information stenciled on the shell body:

	<u>Example</u>	<u>Example</u>
Filler symbol and designation (3/4-inch letters) . . . . .	WP-Smoke	H-Gas
Caliber marking and weapon designation (1/2-inch letters) . . . . .	4.2 IN-CM	4.2 IN-CM
Loaders identification mark and dates (1/2-inch letters) . . . . .	EA 8-36	PBA 9-43
Lot number (1/2-inch letters) . . . . .	Lot 144	Lot 176

COMPLETE ROUND SHELL CONTAINERS

The shell containers are marked on top and bottom in 1/4-inch letters, in white ink on a black surface with the following information:

	<u>Example</u>
4.2-inch CM Shell . . . . .	4.2-Inch CM Shell
Filling Symbol . . . . .	CG
Mark (such as M2). . . . .	M2

The containers are marked on the side in 1/2-inch letters, using either black or white ink, with the following information:

	<u>Example</u>
4.2-Inch CM Shell . . . . .	4.2-Inch CM Shell
Filling Symbol . . . . .	CG
Mark (such as M2). . . . .	M2

## MARKING

### COMPLETE ROUND SHELL BOXES

Two diagonally opposite corners are coated on three contiguous faces with an insignia blue color in the form of a triangle on each face. This identifies the Service.

The chemical filling is identified by painting one or two 1/2-inch stripes in the appropriate color on a blue-gray background on two contiguous faces at a corner between an end and a side. The stripes are horizontal and meet at the corner. The filling of the shell is identified, also, in the stenciled information on the box.

Stenciled markings appear on one end, one side and the top. In the upper two-thirds of one end and in 1/2-inch letters the following information is stenciled:

	<u>Example</u>
Number Rounds - 4.2-inch CM-Filling Symbol . . .	2 Rds. 4.2-Inch CM-WP
Lot Number . . . . .	Lot No. 3244
Weight. . . . .	Weight 68.5
Cubage. . . . .	Cube 1.13

The following information is stenciled on one side in 1/4-inch letters:

	<u>Example</u>
Nomenclature and size . . . . .	2 Complete Rounds, 4.2-Inch CM
Type of filling. . . . .	High Explosive HE
Type of propellant . . . . .	W/M6 Propelling Charge
Name of contractor . . . . .	Jones Corporation
Contract number and/or	
Purchase order number . . . . .	Cont. B325 CWS 1314
Date packed. . . . .	Packed August 1944
Inspection marking. . . . .	Accepted and Inspected
Case number . . . . .	Case No. 134
Lot number . . . . .	Lot Number 2335

The name and address of both the consignor and the consignee are placed on the top of the box.

### FUZE BOX

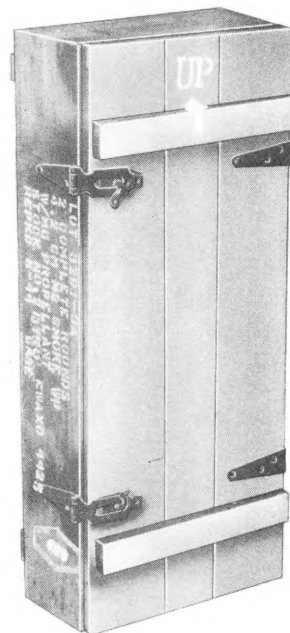
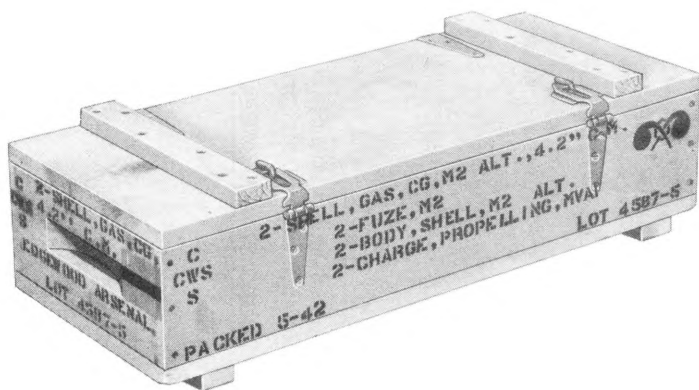
The boxes of fuzes are painted and marked in a manner similar to the complete rounds giving all pertinent information.

### PROPELLING CHARGE BOX

Diagonal corners are marked with the CWS color. The following information is stenciled on the box:

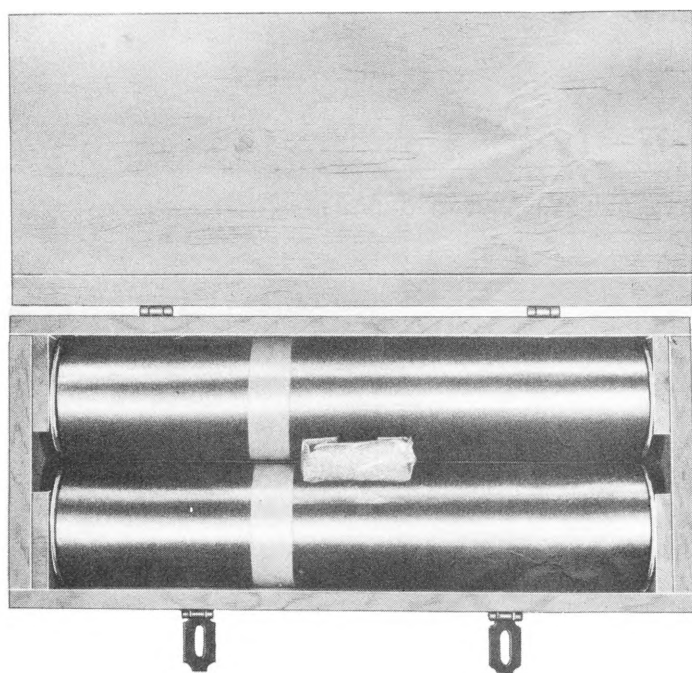
- Name of place where packed - on end of box
- Quantity and kind - on end and on side of box
- CWS insignia - on end and on side of box
- Lot number - on side of box
- Month and year of packing - on side of box
- Compliance with ICC regulations - on side of box
- Name and address of consignor - on top of box
- Name and address of consignee - on top of box





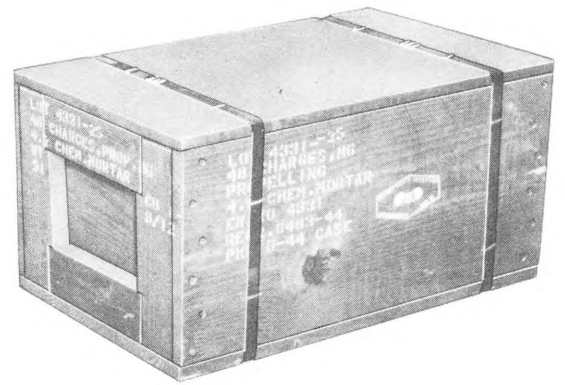
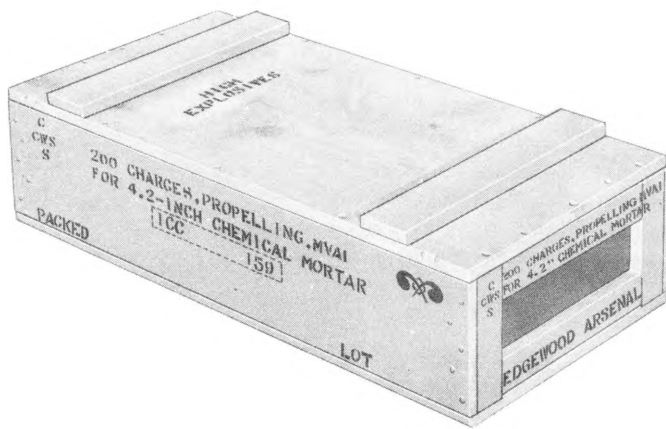
COMPLETE ROUND PACKING BOX

PLATE 10



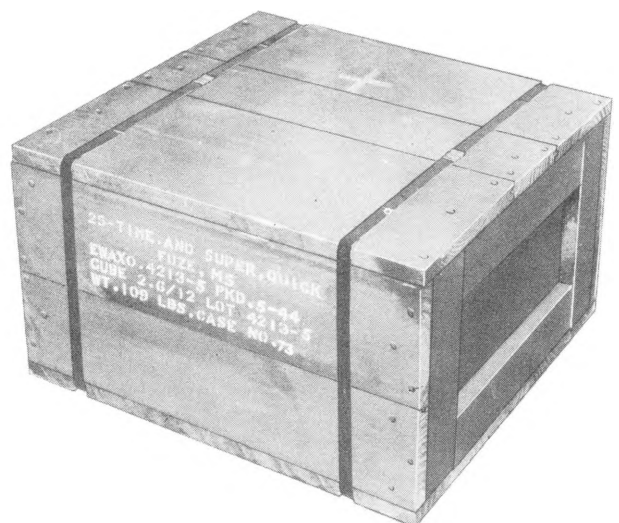
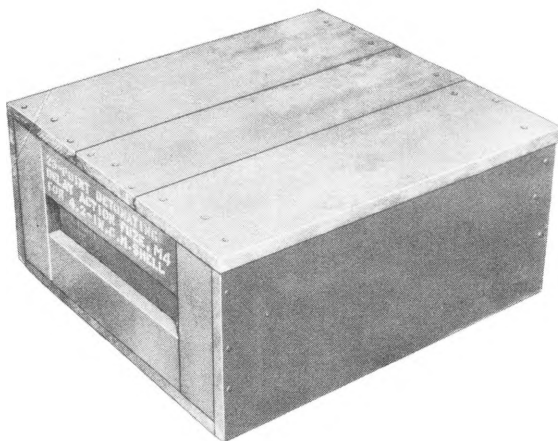
WATERPROOF PACKAGING AND PACKING

PLATE 11



PROPELLING CHARGE PACKING BOX WITH MARKINGS

PLATE 12



FUZE PACKING BOXES

PLATE 13

